No. 04-1329

IN THE

Supreme Court of the United States

ILLINOIS TOOL WORKS, INC. AND TRIDENT, INC.,
Petitioners,

v.

INDEPENDENT INK, INC.,
Respondent.

On Writ of Certiorari to the United States Court of Appeals for the Federal Circuit

BRIEF OF PROFESSORS BARRY NALEBUFF, IAN AYRES, AND LAWRENCE SULLIVAN AS AMICI CURIAE IN SUPPORT OF RESPONDENT

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TABLE OF CONTENTS

Page

INTEREST OF THE AMICI CURIAE 1

INTRODUCTION AND SUMMARY OF ARGUMENT 2

ARGUMENT 5

A REQUIREMENTS TYING ARRANGEMENT FOR ESSENTIAL COMPLEMENTARY GOODS TO A PATENT-PROTECTED PRODUCT SHOULD BE PRESUMED TO REFLECT MARKET POWER BECAUSE ITS PURPOSE IS "METERING," AND MARKET POWER IS REQUIRED TO IMPOSE PRICE DISCRIMINATION VIA "METERING" ON CUSTOMERS 5

A. Tying Arrangements for Required Complementary Goods Are Often Designed to Implement a Metering System of Differential Pricing 5

1. The Economic Rationales Typically Advanced for Tying Arrangements Are Not the Appropriate Explanation for the Requirements Tie in This Case or in Many of This Court's Relevant Precedents 7

a. Preservation of Quality and Reputation 7

b. Cost Savings 8

c. Risk Allocation 9

d. Leveraging Market Power 10

2. Tying Arrangements Like the One in This Case Are Designed to Implement a Metering System That Charges Higher Prices to Heavier Users of the Primary Product 12

B. The Use of Tying as a Metering Device Implicates Serious Antitrust Concerns 18

1. Imperfect Price Discrimination Has Not Been Demonstrated to Be Efficient in the Marketplace 18

2. Metering Is Evidence of Market Power 22

3. Any Economic Benefits That Might Accrue from Metering Should Be Obtained Directly Through Transparent Pricing Policies Rather Than Indirectly Through an Exploitation of Market Power in Tying Arrangements 24

CONCLUSION 27

TABLE OF AUTHORITIES

CASES

Carbice Corp. of Am. v. Am. Patents Dev. Corp.,
283 U.S. 27 (1931) 13

Grappone, Inc. v. Subaru of New England, Inc.,
858 F.2d 792 (1st Cir. 1988) 7, 15

Henry v. A.B. Dick Co.,
224 U.S. 1 (1912) 5, 7, 13, 14

IBM v. United States,
298 U.S. 131 (1936) 5, 7, 13

Int'l Salt Co. v. United States,
332 U.S. 392 (1947) 7, 13

Jefferson Parish Hosp. Dist. No. 2 v. Hyde,
466 U.S. 2 (1984) 16

Leitch Mfg. Co. v. Barber Co.,
302 U.S. 458 (1938) 13

Morton Salt Co. v. G.S. Suppinger Co.,
314 U.S. 488 (1942) 25

United Shoe Mach. Co. v. United States,
258 U.S. 451 (1922) 7, 14

United States Steel Corp. v. Fortner Enters., Inc.,
429 U.S. 610 (1977) 14

United States v. Loew's, Inc.,
371 U.S. 38 (1962) 5

United States v. Microsoft Corp.,
253 F.3d 34 (D.C. Cir. 2001) 11

STATUTES

35 U.S.C. § 271(d)(5) 18

MISCELLANEOUS

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INTEREST OF THE AMICI CURIAE[1]

Barry Nalebuff is the Milton Steinbach Professor of Economics and Management at Yale School of Management. He is an expert on the effects of bundling and tying on competition. In 2003, the UK Department of Trade and Industry commissioned him to write *Bundling, Tying, and Portfolio Effects*, the first in its monograph series on competition. He has presented his research on bundling and tying at the Federal Trade Commission and the Department of Justice, and in 2004 he led a two-day seminar on the *Antitrust Issues of Bundling and Tying* at the Federal Communications Commission. He has also worked as an expert on bundling for the Australian Government. He is the invited author of the forthcoming New Palgrave Dictionary entry on Bundling and Tying and the forthcoming Antitrust Bulletin article *Exclusionary Bundling*.

Ian Ayres is the William K. Townsend Professor at Yale Law School. He is a lawyer and holds a Ph.D. in Economics. Professor Ayres has written eight books and more than 100 articles in both law reviews and economic journals that cover a variety of topics, including several on antitrust and/or patent issues.

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[1] In accordance with Rule 37.6, amici certify that counsel for a party did not author this brief in whole or in part and that no entity other than amici or their counsel made a monetary contribution to the preparation or submission of the brief.

articles on antitrust law. He served on the Commission on Antitrust Law and Procedure established by President Carter.

Amici curiae have no stake in the outcome of this particular case. Their interest lies in assisting the Court in reaching a correct and economically sound application of antitrust law concerning tying arrangements. A full understanding of the broader anticompetitive issues associated with tying is critical to this Court's consideration of the issue of market power conferred by a patent used in a tying contract. The last two decades have brought significant advances in the economic theory of bundling and tying, and Professor Nalebuff has been deeply involved in those developments. Of particular relevance to this case is the current economic theory explaining why firms engage in tying contracts, how those contracts may affect consumer welfare and market efficiency, and the extent to which those contracts carry anticompetitive potential. This brief seeks to contribute to the Court's understanding of those issues.

Counsel for the parties have consented to the filing of this brief in letters filed with the Clerk of the Court.

INTRODUCTION AND SUMMARY OF ARGUMENT

The "Chicago School" of economic theory has criticized the application of antitrust law to tying arrangements, arguing that there is no possible gain from leveraging a monopoly in one market to another. *See* Aaron Director & Edward Levi, *Law and the Future: Trade Regulation*, 51 Nw. U. L. Rev. 281 (1956); Robert Bork, *The Antitrust Paradox: A Policy at War with Itself* (NY: Free Press 1995 ed.). More recent developments in economic theory, however, have shown that this argument is true only in a *static* or short-run context. In a *dynamic* or long-run context, the use of a tied sales contract can help protect the existing monopolist from entry or can help the monopolist gain a second monopoly in the tied sales good.

A tied sales contract can also be used as a "metering" device. The firm meters the use of its good A (e.g., a printer) by the use of a required complementary good B (e.g., ink). Selling the complementary good at a premium price allows the seller to increase its profits via what is known as second-degree price discrimination. Price discrimination via metering appears to be the most compelling explanation for the tying contract in this case.

Metering is an exercise of a firm's monopoly power. Indeed, it is direct evidence of market power. It is often argued erroneously that since metering is a form of price discrimination it leads to enhanced efficiency.[2] While *perfect* price discrimination leads to enhanced efficiency, there is no presumption that *imperfect* price discrimination—such as the pricing tariff created via a requirements tie contract—will improve efficiency. Output may fall as the pricing used to extract more surplus from some customer groups leads other consumers to be excluded from the market. Attempts to impose price discrimination also lead to direct costs on firms and consumers. There is no efficiency reason to facilitate metering and price discrimination via tied sales contracts.

Furthermore, there are distribution consequences from price discrimination: the gains to the seller will be largely offset, or even outweighed, by the loss to consumers. Price discrimination via tied sales contracts is generally harmful to consumers because high-value consumers end up paying more for the product. Additional customers brought into the market add to profits but do not capture much of the benefits for themselves.

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[2] *See, e.g.*, Bork at 398; Br. of Amicus Curiae Verizon Communications, at 8 ("[A]ntitrust policy is disserved by rules of law that discourage any firm, including a monopolist, from adopting efficient practices and vigorously competing to the detriment of rivals."). Contrary to Judge Bork, however, there is no presumption that metering is an efficient practice.

The potential to leverage market power, the potential for inefficiency, and the distributional consequences are three reasons to be suspicious of tying contracts. The Court should balance these potential harms against the relatively small expected costs associated with retaining the current rebuttable presumption of market power. Under the status quo, few firms will employ the type of requirements tie seen in this case. Even where this type of a requirements tie contract is efficient, there is little lost from its absence. The reason is that the firm can still engage in direct metering. For example, instead of charging a marked-up price for ink, the firm can charge a per-page price for the use of the printer. This will achieve the effect of price discrimination while avoiding any potential harm to competition in the tied good market.

While the existence of a patent is not by itself conclusive evidence of market power, the Court is confronted here with a subset of all patents in which there exists a complementary product that must be used with the patented product in order to get the patented product to provide the output for which it was purchased. In these patent situations, the imposition of a requirements tie is strongly indicative that the seller has significant market power, thus justifying a presumption that, while rebuttable, favors the challenger to the tie. This Court has long recognized such a presumption, and it should not disturb the existing rule.

ARGUMENT

A REQUIREMENTS TYING ARRANGEMENT FOR ESSENTIAL COMPLEMENTARY GOODS TO A PATENT-PROTECTED PRODUCT SHOULD BE PRESUMED TO REFLECT MARKET POWER BECAUSE ITS PURPOSE IS "METERING," AND MARKET POWER IS REQUIRED TO IMPOSE PRICE DISCRIMINATION VIA "METERING" ON CUSTOMERS

A. Tying Arrangements for Required Complementary Goods Are Often Designed to Implement a Metering System of Differential Pricing

In a tied sale, the seller requires the customer to purchase a specific second good (B) along with its primary product (A). A tied sale can be contemporaneous. For example, in *United States v. Loew's, Inc.*, 371 U.S. 38 (1962), a movie theater that wanted to exhibit the studio's popular movies was also required to exhibit its less popular movies.

Alternatively, the primary product can be connected to a complementary product via a requirements tie in which the purchaser of product A must make its future purchases of the required product B from the firm selling A. For example, IBM required its computer hardware customers to purchase its punch cards. *See IBM v. United States*, 298 U.S. 131 (1936). Lessees of an A.B. Dick mimeograph machine were required to purchase all of their future ink from A.B. Dick. *See Henry v. A.B. Dick Co.*, 224 U.S. 1 (1912).

There are two salient features of a requirements tie. First, the two products are essential complements in that the original product is of no value without the tied product. A mimeograph machine without ink is of no value. In contrast, a movie theatre can benefit from screening one film without screening the other films in the tied sales.

Second, the value of the original product is related to its intensity of use. A customer that makes more mimeograph copies will generally place a higher value upon the mimeograph machine and require more ink. A customer that does more computing will generally place a higher value upon the computer and have a greater need for punch cards. More frequent use requires more complementary products, thereby allowing the seller to charge more to and earn more from high-value customers.

Price discrimination is not the only motivation for a tie. Broadly speaking, there are five possible reasons why firms might engage in a tie: (a) preservation of quality and reputation; (b) cost savings; (c) risk allocation; (d) leveraging market power; and (e) price discrimination via metering.

The first three motivations enhance efficiency and are often used to justify a tying contract. The first two motivations, however, generally are not relevant to a requirements tie, and the risk allocation justification is not relevant to this case.

Leveraging market power is the most commonly invoked justification for prohibiting tied contracts. This motivation presents a genuine antitrust concern in many situations and is a legitimate reason for the courts to be suspicious of tying contracts. This motivation, however, also appears to be inapplicable on the facts presented here.

Price discrimination via metering is the most compelling explanation for the requirements tying contract in this case. Accordingly, after a brief discussion of the first four motivations, this brief will focus upon the antitrust issues associated with a requirements tie used for the purposes of price discrimination.

1. The Economic Rationales Typically Advanced for Tying Arrangements Are Not the Appropriate Explanation for the Requirements Tie in This Case or in Many of This Court's Relevant Precedents

a. Preservation of Quality and Reputation

Firms may be motivated to tie for reasons related to quality and/or safety. For example, if a machine breaks down or the end result fails, the seller will suffer a loss of reputation. Thus, a firm may specify other inputs in order to ensure proper results.

While this motivation may apply in some circumstances, it has been invoked as an antitrust defense to an extent that strains credibility. *See* Br. for Appellants at 13, 34, *Int'l Salt Co. v. United States*, 332 U.S. 392 (1947); Br. for Appellants at 8-16, *IBM v. United States*, 298 U.S. 131 (1936); Br. for Appellants, Vol. 1, at 221-26, *United Shoe Mach. Co. v. United States*, 258 U.S. 451 (1922); Br. for Appellees at 13, *Henry v. A.B. Dick Co.*, 224 U.S. 1 (1912). The courts have usually rejected the quality explanation as a defense in tying cases, though the defense was accepted in the case of automobile spare parts. *See Grappone, Inc. v. Subaru of New England, Inc.*, 858 F.2d 792 (1st Cir. 1988).

In this case, petitioner Trident made the usual claim that respondent's ink was of lower quality and caused damage to printer heads, although petitioner lacked evidence to support this finding. J.A. 442a, 478a. Chemical analysis showed that the inks were indistinguishable. J.A. 519a-523a. In any event, sophisticated industrial users should be able to judge the quality of the output or to observe damage to the printer heads. Moreover, even if the quality were inferior, the quality might be good enough and the price reduction significant enough that a user would choose to purchase respondent's product.

A basic problem with invoking the quality argument as an antitrust defense is that the compulsion of a tied sale should not be *necessary* to achieving the professed goal of ensuring quality. If the primary good manufacturer is the only firm selling complementary or aftermarket products that ensure quality, then customers should choose the firm's other products without be forced to do so. If the product fails as a result of using inferior complementary or aftermarket products, the firm can help educate the customer that the failure was caused by other products and not by the original product.

b. Cost Savings

A related argument to quality is that the tied sale promotes cost reduction or enhanced efficiency. Professors Evans and Salinger have identified many examples of such tying arrangements. *See* David Evans & Michael Salinger, *An Empirical Analysis of Bundling and Tying: Over the Counter Pain Relief and Cold Medicines* (CESifo Working Paper No. 1297) (2004); David Evans & Michael Salinger, *Why Do Firms Bundle and Tie? Evidence from Competitive Markets and Implications for Tying Law*, 22 Yale J. on Reg. 38 (2005).

In some of these cases, the tied sale of complementary products can be viewed as one product rather than two. Thus, shoes are sold with shoelaces. It is more efficient for the shoemaker to include laces of the right length with the shoes than to make the purchaser buy the initial pair of shoelaces separately.

The sale of a printer with the *initial* toner or ink cartridge is another such example. The least-cost way of delivering an initial cartridge is along with the printer. Selling printers with an initial cartridge is a contemporaneous tied sale. Unlike the sale of replacement cartridges, it is not a case of metering. All customers get the same number of initial cartridges, namely, one. Furthermore, such a tied sale is *de minimus* in

that it affects only a small percentage of the total market. If the average customer purchases 20 cartridges over the lifetime of the printer, the initial sale covers only 5% of the market.

The efficiency or one-good arguments generally do not apply to the case of a requirements tie. No one imagines that a lifetime supply of shoelaces is really part of the original shoe and shoelace package. Nor do we imagine that there are cost savings associated with requiring the customer to purchase all future shoelace needs from a specified manufacturer. To the extent that there are cost savings, they should be reflected in lower prices that lead consumers to purchase aftermarket products from the most efficient supplier.

Cost efficiencies thus are not a valid explanation for why a firm would *require* its customers to make all complementary good purchases from itself or a specified vendor. The efficiency defense of a requirements tie is less compelling than for a contemporaneous tie because there is little danger that dissolving the requirements tie would disrupt an efficient production or distribution arrangement.

A related claimed justification is that the tie creates economies of scale. Under this contention, however, the scale economies would be arising in the tied goods market. That would suggest that the tied goods market does not have the cost structure of a competitive market and thus may be subject to a monopoly.

c. Risk Allocation

Petitioners argue (Pet. Br. 30) that a requirements tie is efficient because it improves risk allocation. When customers are uncertain about the value of the product, sellers can reduce the risk via a no-lose contract. The buyer pays a small amount upfront and a price with each use, making the sale more like a lease. In effect, the customer pays for the

product only if and when he uses it. This type of contract also signals the seller's confidence that the buyer will value the original good. The per-use sales contract is typically done via a requirements tie for a consumable product used with the original item.

While risk allocation can be an efficient use of tying, it does not appear relevant to this case. Commercial users of inkjet printers have a better understanding of their own expected usage than does the seller. For example, the demand for printing on beer cases is a direct function of beer production, and therefore that demand is better understood by the inkjet customer than by the seller. Furthermore, inkjet is not a new and unproven technology. If risk allocation were a motivation, then the customer would be asking for a metering contract, and it would be an option, not a requirement imposed upon the customers. That is, customers would have the option of buying a printer at one price without a requirements tie or at a lower price with such a tie. Neither risk allocation nor signaling requires the use of a tied sales contract; both can be done via direct metering.

d. Leveraging Market Power

A fourth motivation for tying is leveraging market power. This Court's early decisions on tying were motivated by this concern. This explanation for tying has been subject to harsh criticism from academic economists, especially the "Chicago School." According to the Chicago School argument, a firm that has a monopoly in good A has only one monopoly profit to earn and thus cannot gain by leveraging its power into a second market for good B.

The mistake in the Chicago School argument is that it takes a static or short-run perspective. Thus, although it is true that the firm that engages in tying may not increase its present one-monopoly profits, that is not the point of the tie. The tied sales are designed to help preserve the original monopoly or to lead to monopolization of the aftermarket

product. *See* Dennis Carlton & Michael Waldman, *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*, 33 RAND J. Econ. 194 (2002); Michael D. Whinston, *Tying, Foreclosure, and Exclusion*, 80 Am. Econ. Rev. 837 (1990); Barry Nalebuff, *Bundling as an Entry Deterrent Device*, 119 Q. J. Econ. 159 (2004).

The tying of one good to another may reverberate back into the market where the firm has power. If the tying arrangement leads to exit in the tied-good market, this in turn may reduce the possibility of entry in the original market.

For example, the likely entrant might have come from a firm in the tied-good market. This scenario was central to the U.S. antitrust case against Microsoft. *See United States v. Microsoft Corp.*, 253 F.3d 34, 50 (D.C. Cir. 2001) (en banc). There, the PC operating system was the original market and an Internet browser was the tied market. Microsoft's tied sales made it more difficult for Netscape to compete in the browser market. Even if consumers were no worse off for the loss of competition in the browser market, they may have lost one of the few potential entrants who could have challenged Microsoft's market power in the operating system market.

Tying may also protect monopoly power through the loss of competition in the tied-good market. This becomes a form of raising rivals' costs. Entry is deterred if the tied good is an essential complement to the original product and is no longer available (or is available only at a much higher cost) to a potential entrant.

If the firm controls enough of the market for the complementary product, then it may attain a monopoly in that market as well. Depending on the cost of entry and minimal efficient scale in this market, the product A monopolist may then enjoy the fruits of two monopolies. The Chicago School argument assumes that the product B market remains competitive. But, as a result of the requirements tie, the B

market may over time become more concentrated or even monopolized.

Although these examples illustrate an important theoretical point, leveraging market power does not appear to be the motivation for the tie in this case. It is unlikely that Trident's exclusion of respondent will lead to monopolization of the ink market or to increased costs for future entrants into the printer head business. As a theoretical matter, however, the antitrust law should recognize that a firm may want to engage in tying in order to extend or protect its market power. That dynamic incentive to tie does not conflict with the Chicago School argument, which is inherently static in nature. When relevant, the concern over leveraging market power can justify a prohibition against tied sales by a firm with a patent or other source of market power.

2. Tying Arrangements Like the One in This Case Are Designed to Implement a Metering System That Charges Higher Prices to Heavier Users of the Primary Product

"Metering" describes a practice under which a customer is charged a price based on his or her use of the product. This allows the seller to raise its profits by charging more to high-value customers, while still making sales at lower prices to low-value customers. It has long been understood that metering can be a useful price discrimination tool. *See* Ward Bowman, *Tying Arrangements and the Leverage Problem*, 67 Yale Law J. 19 (1957).

Metering is the most powerful explanation for the requirements tie in this case. Indeed, it appears to be the best explanation for the tying arrangement in many of the cases decided by this Court. *See* Louis Kaplow, *Extension of Monopoly Power Through Leverage*, 85 Colum. L. Rev. 515 (1985).

The common feature of these cases is that firms with a patented product conditioned the sale or lease of that product on the purchase of an essential complementary product. *See Int'l Salt Co. v. United States*, 332 U.S. 392 (1947);[3] *Leitch Mfg. Co. v. Barber Co.*, 302 U.S. 458 (1938); *IBM Corp. v. United States*, 298 U.S. 131 (1936); *Carbice Corp. of Am. v. Am. Patents Dev. Corp.*, 283 U.S. 27 (1931); *Henry v. A.B. Dick Co.*, 224 U.S. 1 (1912). This Court indicated that the alleged purpose of the tying practice in these cases was to extend the firm's monopoly to the tied market. As critics of these decisions have argued, it does not seem reasonable that commodity products such as salt, tar, punch cards, dry ice, or mimeograph fluid would be monopolized. It is more reasonable that the primary purpose of the tying contracts was to engage in price discrimination via metering.

In each of these cases, the intensity of use of the original product was directly related to the consumption of the aftermarket product. Companies interested in making more mimeograph copies required more mimeograph fluid and companies interested in paving more roads required more bituminous emulsion. On average, the buyer's valuation of a product is related to its predicted usage. Thus, customers placing the highest value on mimeograph machines are the ones making the most copies. By requiring the customer to purchase mimeograph fluid with a high markup, the producer of the original equipment was able to charge a higher price to high-value customers while preserving sales to low-value customers.

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[3] A noteworthy aspect of the International Salt contract was that the lessee was not required to purchase salt from International Salt if comparable salt was available in the market at a lower price. *See* 332 U.S. at 395 n.5. If such a provision had existed in the license agreement involved here, the agreement would be less objectionable. Respondent would have been able to sell its ink at the discounted price or Trident would have had to match the discount.

While the price-discrimination argument is the most compelling explanation of many tying contracts, this argument has rarely been invoked in court to justify such conduct. Professor Kaplow determined in 1985 that defendants had only twice argued that the tied product sale is used as a metering device, and then only in summary fashion:

> This alternative explanation has not appeared in a Supreme Court brief in the past 63 years. In *United Shoe Mach. Co. v. United States*, 258 U.S. 451 (1922), counsel for the appellant-defendant allocated one clause of a single sentence in a 1,562 page brief to the proposition that the tied products might serve as a meter to measure the use of the tying product. . . . In *Henry v. A.B. Dick Co.*, 224 U.S. 1 (1912), counsel for the appellee-defendant similarly argued that the tied product operated as a meter capable of measuring the use of the tying product so as to facilitate the determination of an appropriate royalty.

Kaplow, 85 Colum. L. Rev. at 545.

Most of the early cases preceded the economic theory of metering, and thus it is not surprising that metering is not analyzed in those cases. *Id.* Modern defendants may be reluctant to raise metering as a defense for fear that the court will see price discrimination as evidence of market power, which would then lead to a *per se* violation. As this Court has observed: "If, as some economists have suggested, the purpose of a tie-in is often to facilitate price discrimination, such evidence would imply the existence of power that a free market would not tolerate." *United States Steel Corp. v. Fortner Enters., Inc.*, 429 U.S. 610, 617 (1977).

Metering can be done directly or through a tied sale. Under direct metering, the customer is charged a per-use or metered fee. For example, Monsanto charged a per-acre technology use fee for its patented Roundup-ready seeds. Under the tied sale, the metering is based on the use of a

complementary product, as with printers and toner or ink. The ink or toner usage provides a good indication of how many copies have been made. A key ingredient of the metering is that the tied aftermarket product is sold at a price premium. The customer would prefer to buy the tied product elsewhere but is prevented from doing so either by contract, technology constraints, or lack of alternatives.

There has been some confusion as to whether this type of metering leads to additional monopoly profits. In *Grappone, Inc. v. Subaru of New England, Inc.*, 858 F.2d 792, 795 (1st Cir. 1988), the court (per Breyer, J.) stated (emphasis added):

> If the seller does have, and has been fully exercising, market power, it also cannot force buyers to take a more expensive or less desirable Product B, *unless* it provides buyers *equivalent* compensation by lowering the price of Product A . . .

To the extent that this statement suggests that a monopolist cannot obtain more profits via a tied sale, it misreads the Chicago School argument. That argument assumes that all consumers purchase identical quantities of good B, and thus there is no opportunity to engage in price discrimination via metering.

When customer demand for good B is indicative of the customer's value for good A, however, a monopolist can force the purchase of an overpriced good B without the need to offer equivalent compensation. In so doing, the monopolist increases its profits though the greater exercise of its market power.

This potential is illustrated by the following example positing two consumers for a printer. The consumers' value for the printer depends on the intensity of use. Absent a requirements tie, copies can be made at a competitive price of $1/copy. Consumer 1 expects to make 10 copies that he values at $2/copy. Thus, consumer 1 expects to get a surplus

of $1/copy and is willing to pay up to $10 for the machine. Consumer 2 expects to make 6 copies that he values at $2/copy. Thus, consumer 2 is willing to pay up to $6 for the machine.

Without an option to engage in a tied sale or metering, the monopolist maximizes profits by charging $6 for the machine and selling two machines, yielding $12 in profits (assuming zero production cost). When a requirements tied sale is possible, however, the monopolist can also force the buyer to use its overpriced paper. The paper is marked up so that the monopolist earns $1/page. Thus, consumers now find the cost of copying to be $2/page. In this case, the monopolist can give away the machine for free and still earn higher profits. Customer 1 will make 10 copies and customer 2 will make 6, leading to total profits of $16.

Note that customer 2 pays the same amount in both cases. For that customer, the reduction in the machine price is equivalent compensation for the increased cost of the tied good. However, customer 1 is now paying $10 rather than $6. That customer receives no equivalent compensation and hence is worse off, though not so much worse off as to reject the purchase of the machine.

This example illustrates that a monopolist charging a single price in the market does not fully exercise its market power. The use of a requirements tied sales contract allows a seller to exercise its market power more fully.

Note that this example does not contradict the Chicago School one-monopoly-profit argument discussed above. *See supra* pp. 10-11; Robert Bork, *The Antitrust Paradox: A Policy at War with Itself* (NY: Free Press 1995 ed.); *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 36 (1984)). The monopolist has increased its monopoly profits via the metering arrangement. There is still only one monopoly profit, but the size of that monopoly profit is

variable based on the producer's ability to engage in price discrimination.

In this example, consumer welfare is reduced as a result of the metering contract. The reason why consumer surplus typically falls is that those consumers with the highest value and the highest surplus are the ones who end up paying the biggest increase in price. The new customers brought into the market are the ones with the smallest surplus to begin with, and they keep little of it. The largest source of increased profits is the transfer from consumers to the producer.

To the extent that a firm is given a legal monopoly via a patent, that monopoly power is expanded when the firm is allowed to engage in tied sales for the purpose of metering. The expansion does not arise because of power in the complementary market. Rather, the increased power comes in the original market. Consumers do not expect to benefit when firms are able to meter via a tied sale.

The requirements tie is a unilaterally imposed contract. But unlike a unilateral price cut that hurts competitors and helps consumers, the requirements tie hurts both groups—consumers pay more and competitors in the tied goods market are excluded.

Metering is the predominant explanation for most requirements tie contracts. This includes many of the tying cases considered by this Court. Much of the academic criticism of the decisions is due to the Court's focus on the leverage of monopoly power as the motivation for, and hence the reason to condemn, tying. Although the criticism of that focus on leveraging monopoly power is well-taken, the holdings of those cases remain justifiable on economic grounds. The act of price discrimination via tied sales creates a harm to consumers. In the case of patents, the tied

complementary sales extend the term of the patent as well as the monopoly power of the patent holder.[4]

B. The Use of Tying as a Metering Device Implicates Serious Antitrust Concerns

We turn now to the question of how the courts should consider the use of tying as a metering device, which we discuss in three stages. First, we explain that, although price discrimination can expand output and improve efficiency in some cases, requirements ties may also lead to reduced efficiency. No special assumptions are required to reach this result, and hence there is no basis for a presumption that price discrimination via metering will be efficient. Second, we show that metering is evidence of market power. Third, we explain that direct metering is an alternative to tied sales that does not involve unlawful exploitation of market power.

1. Imperfect Price Discrimination Has Not Been Demonstrated to Be Efficient in the Marketplace

Petitioners assert (Pet. Br. 27) that "[m]ost tying arrangements are economically beneficial." Yet few of the claimed benefits apply to the case of a requirements tie like that imposed by petitioner Trident. The predominant benefit claimed is that "patent tying may create efficiencies in calculating license fees" (at 29). An unstated, but implied, efficiency is the act of price discrimination.

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[4] A requirements tie extends indefinitely into the future, thus effectively extending the life and power of the patent beyond its statutory term. In that sense, it appears to be both a misuse of the patent and a violation of Section 1 of the Sherman Act in that it is a contractual provision that imposes an unreasonable restraint on trade. While the 1988 Patent Misuse Reform Act addresses the right of a patent holder to condition the sale of the patented product on the purchase of a separate product, not all tied sales are permitted. A tie that requires market power is excluded as it implies the patent owner has market power. *See* 35 U.S.C. § 271(d)(5).

In elementary economic textbooks, it is almost taken as a given that price discrimination is efficient, but this is an unfortunate oversimplification. *See* Kathleen Carroll & Dennis Coates, *Teaching Price Discrimination: Some Clarification*, 66 S. Econ. J. 466 (1999). There are two problems with that conclusion.

The first problem is one of interpretation. The efficiency argument treats the impact on consumers and producers equally. The gain to the monopolist from price discrimination comes from increased sales and from an increased ability to capture surplus from consumers. Thus, while the monopolist gains, consumers lose.[5] With perfect price discrimination, consumers end up with no surplus at all. Even if the monopolist gains more than the consumers lose, that net gain in efficiency should not justify allowing the tied contract. Producer profits and consumer surplus should not be (and are not) treated equivalently in antitrust.[6] The expected harm to consumers should result in striking down the tied contract even if there is a net gain in economic efficiency.

The second problem is fundamental: for all practical purposes, there is no reason to believe that price

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[5] Under special circumstances, price discrimination may result in a gain to consumers. The price discrimination must lead to a large increase in output, and the increased output must result in significant economies of scale. *See* Jerry A. Hausman & Jeffrey K. MacKie-Mason, *Price Discrimination and Patent Policy*, 19 RAND J. Econ. 253 (1988). This result also requires that the high-value consumers obtain very little surplus under the one-price-to-all contract.

[6] For example, Section 2 of the Sherman Act prohibits monopolization without regard to its efficiency. Thus, a firm charged with monopolization could not use the potential efficiency of price discrimination as a defense. Consumers are given more weight than producers when calculating damages in antitrust cases. Damages are not based on the loss of overall efficiency, but rather on metrics such as overcharges or loss to consumer welfare.

discrimination is efficient. The classic efficiency result is based on perfect price discrimination (also known as first-degree price discrimination). Perfect price discrimination requires the firm to have perfect knowledge about each customer's valuation. In practice, perfect price discrimination does not exist. Instead, price discrimination is based on purchase behavior such as the use of a complementary product (called second-degree price discrimination) or on observable group characteristics such as senior citizen discounts (called third-degree price discrimination). In the simple case of linear demand and constant costs, both second- and third-degree price discrimination can result in lower efficiency.[7] *There is no general result that suggests that imperfect price discrimination improves efficiency, even treating consumer surplus and producer profits equally.*

Of particular relevance to this case is the potential efficiency of price discrimination via metering tariffs. With a single consumer in the market and complete knowledge of the customer's preferences, a metering tariff can extract all the surplus and achieve perfect efficiency. In his book, Judge Bork uses the intuition of perfect price discrimination to assert that "the more the monopolist is allowed to discriminate, the better are the results in terms of resource allocation." Bork, *The Antitrust Paradox*, at 398.

But this conclusion is false because with imperfect price discrimination, more is not always better. Specifically, the introduction of metering can reduce market efficiency when customers are heterogeneous. As the monopolist uses metering to capture more surplus from large customers, this

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[7] Third-degree price discrimination causes a misallocation of goods to consumers, thereby reducing efficiency. Where demand functions are linear and the good is produced at a constant marginal cost, profits increase, but by less than the loss to consumers. *See* Richard Schmalensee, *Output and Welfare Implications of Monopolistic Third-Degree Price Discrimination*, 71 Am. Econ. Rev. 242 (1981).

may lead to small and medium customers being excluded entirely from the market; as a result, total output and efficiency both fall. *See* John E. Kwoka, Jr., *Output and Allocative Price Efficiency Under Second-Degree Price Discrimination*, 22 Econ. Inquiry 282 (1984). There is no evidence, empirical or theoretical, suggesting that imperfect price discrimination in general and metering, in particular, improves efficiency.[8]

Furthermore, firms will find resistance to their attempts to impose imperfect price discrimination. This resistance leads to an often overlooked inefficiency where firms spend significant resources to impose price discrimination while consumers spend resources to avoid being subject to price discrimination.

This leads to a third reason why price discrimination is costly: no firm has a perfect monopoly. Consumers can find ways to create substitutes. They will do their best to avoid being subject to price discrimination, and these avoidance efforts end up being very costly. Unlike the consumer welfare loss of one price to all, where low-value customers end up being excluded from the market, price discrimination causes high-value customers to distort their behavior, which can make the costs especially large.

Airline pricing illustrates this phenomenon. Airlines use seven-day advance purchase and Saturday night stayover restrictions to offer discounts to leisure customers while still getting business travelers to pay full fare. In response to this policy, some business travelers extend their stays to include a Saturday night. This distortion in behavior can lead to large social losses, well above the incremental gains from the extra demand that arises at the discounted fares. *See* Barry

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[8] A necessary, but not sufficient, condition is that price discrimination lead to an expansion in output. *See* Hal R. Varian, *Price Discrimination and Social Welfare*, 75 Am. Econ. Rev. 870 (1985).

Nalebuff, *Bundling, Tying, and Portfolio Effects* at 78 (DTI Economics Paper No. 1) (2003) (illustrating this point with numerical example). The effort to price discriminate is also costly to firms that make large investments in CRM software in order to fine tune pricing to customers.

2. Metering Is Evidence of Market Power

The ability to engage in price discrimination is evidence of market power. This justifies a rule specifying that requirements tying arrangements result in a rebuttable presumption of market power. Accordingly, in this case the Court need not determine whether a patent on its own is evidence of market power. Rather, the question is whether a patent-protected firm that engages in a forced tie to complementary products has market power.

When firms are able to price discriminate it follows that some customers are more profitable than others. In a perfectly competitive market, such results are not possible. A firm that chose to undercut the price to the most profitable customers would gain all of those customers. Thus, even if firms are earning zero profits in aggregate, a firm could make money by targeting the most profitable segment of the market.

Where we do see price discrimination in practice, we also observe firms with market power. This correlation is evidenced by several situations in which firms have engaged in price discrimination via direct metering. The examples below are drawn from Nalebuff, *Bundling, Tying, and Portfolio Effects*, at 17, 74-75.

Monsanto developed a patent-protected seed that would make crops insensitive to Roundup, an inexpensive and potent pesticide that had previously killed crops along with weeds. The value of this innovation was related to the acreage planted and not to the crop yield. The savings to the farmer were based on the farmer switching to Roundup as an

herbicide, and these savings were proportional to the acreage planted. Thus, Monsanto charged a per-acre technology-use fee for its Roundup-ready crop seed.

Summit developed a patent-protected laser machine for correcting vision. The value of the machine to a doctor was directly proportional to the number of eyes corrected using these machines. As a result Summit charged a per-use fee for its laser eye surgery device.

Wizard International pioneered a machine to automate mat cutting for picture framers. When the machine initially came out, stores could rent it at a monthly fee and pay a charge per corner. Buying the machine was not an option. Wizard wanted to capture as much surplus as possible from high-volume users. But that approach created an opportunity for a competitor to enter the market. It could target Wizard's most profitable customers by offering a fixed-price contract. Indeed, as Wizard faced competition, it changed its contract terms so that users could purchase its machine at a fixed price and pay no per-corner fees.

Technological innovations, often protected by patents, can give the firm market power that allows it to extract more profits by engaging in price discrimination. Such price discrimination leaves the high-profit customers open to competitors. When such firms enter the market, price discrimination is no longer sustainable.

This conclusion might seem at odds with such common practices as senior citizen discounts at movie theaters. One explanation is that the differential pricing reflects differential

costs.[9] Another explanation is that the differential pricing reflects a small degree of market power. With senior citizen discounts, the extent of price discrimination is quite small, and is commensurate with a small degree of market power for a local movie theater. *The general point is that the amount of price discrimination a firm can impose is related to its market power*. Petitioner Trident charged 2.5 to 4 times the price offered by respondent (J.A. 117a), indicating a substantial degree of price discrimination and hence market power.

3. Any Economic Benefits That Might Accrue from Metering Should Be Obtained Directly Through Transparent Pricing Policies Rather Than Indirectly Through an Exploitation of Market Power in Tying Arrangements

If tying arrangements are designed as an indirect method of metering, the question arises why the producer does not simply contract with customers to pay a per-use fee. Direct metering seems easier than enforcing a tied sale.

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[9] If the senior citizen discount is for the matinee showing, then the firm's opportunity costs are lower for that showing because the cinema is unlikely to be full in the afternoon. Thus, the lower price also reflects lower costs. See John R. Lott Jr. and Russell D. Roberts, *A Guide to the Pitfalls of Identifying Price Discrimination*, 29 Econ. Inquiry 14 (1991).

Other kinds of confusion arise over the issue of allocating joint production costs. For example, Professor Levine has observed that the price of sirloin exceeds the price of flank steak and yet one is not more costly to produce than the other. Michael E. Levine, *Price Discrimination Without Market Power*, 19 Yale J. on Reg. 1 (2002). A more careful examination shows that prices do indeed reflect costs. A firm would like to sell more sirloin and less flank steak. The problem is that a cow provides fixed proportions of the two steaks. With joint production, the cost of producing one item is related to the selling price of the other. Thus, the true cost of producing flank steak is the cost of rearing a cow net of the price of the sirloin. As the producer can sell the sirloin for a higher price than the flank, the net cost of producing flank is less than that of producing sirloin.

For example, a firm selling copying machines could install a counter in the machine and charge a per-copy fee. When the counter hit zero, the customer would be unable to print until he paid a fee and downloaded a new code. Monitoring the counter seems no more difficult, and perhaps even easier, than monitoring whether the customer is using the required toner or ink.

Prior to computers and the Internet, the cost of administering such a system might have been prohibitive. The counter might have been expensive and the refill process might have been cumbersome. Today, printers already come with built-in counters, and consumers could simply download a refill code upon payment of a fee for next 1,000 or 10,000 pages.

While such direct metering is obviously enhanced by technology, it appears to have been feasible in commercial applications for some time. In *Morton Salt Co. v. G.S. Suppinger Co.*, 314 U.S. 488 (1942), the machines were used to add salt to canned food, and thus Morton could have measured how many cans of tuna were produced. As noted above, Monsanto, Summit, and Wizard International have implemented systems of per-use fees for their products. In this case, petitioner Trident could have the printer OEMs add a counter to their printers and thereby charge end customers a fee based on the number of cartons printed.

The reason such a direct approach is more the exception than the rule is because firms anticipate consumer resistance to this kind of pricing. Metering via a requirements tied sale is less obvious to consumers. With direct metering, the customer must be told what the cost is per page or per use. With indirect metering, customers may be in the dark. Market power is enhanced by the shrouded nature of the pricing.

Studies show that most customers have little idea of how much it costs to print a page using a laser printer or with

inkjet cartridges. Customers do not know the capacity of the ink or toner cartridge measured in typical pages. Even if they can forecast the future cost of the cartridge, they do not know the proper denominator. *See* Xavier Gabaix & David Laibson, *Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets* (MIT Dep't. of Econ. Working Paper No. 05-18) (2005).

Indirect metering via tied sales is a more subtle form of price discrimination. It achieves a similar result to direct metering without a blatant or naked exercise of market power. Thus, it may facilitate metering and thereby enhance a firm's existing market power.

If the antitrust law were held to prohibit indirect metering via tied sales, firms with true market power would still be able to continue price discrimination via direct metering. Such actions would be legal. Firms that had been able to price discriminate only because customers were fooled by shrouded prices would no longer be able to artificially enhance their market power at the expense of consumers.

There is no reason for the courts to facilitate price discrimination. Those firms that are so powerful that they can meter directly will be able to do so whether tied sales are prohibited or not. In that sense, there is no risk of the per se rule leading to false positives.

The structured per se prohibition serves a purpose. It is possible that the forced tied sale will change the nature of competition in the tied market or will protect market power in the original market. These circumstances will be eliminated if the law presumes such arrangements to reflect market power. It is also possible that the firm was able to get away with price discrimination because consumers were not entirely aware of the true cost of the aftermarket products tied to the original sale. If the prohibition reduces a firm's ability to fool consumers and thereby inflate its market power, that would be a gain to consumers.

Even if price discrimination via metering is efficient, firms may continue to seek those efficiencies through direct metering. That does not mean that a patent-protected firm that cannot meter directly should be allowed to do so indirectly via the forced tied sale contract. Metering via a tied sale has the potential to leverage or protect market power. Direct metering has no such potential.

Some patents are more valuable than others. If the patent provides enough power to charge a per-unit licensing fee then the firm in entitled to the extra profits that come from price discrimination. But if the firm is able to charge a per-unit fee only indirectly via a tied sale, then the firm is using the complementary product to enhance its market power. The courts should not facilitate a firm's attempt to enhance its market power in this way.

CONCLUSION

Requirements tied sales contracts are evidence of market power. The predominant explanation for such contracts is price discrimination via metering. Such metering will typically lead to reductions in consumer welfare. There is no presumption that total welfare will increase. Even when there is a gain, the efficiency calculations leave out the costs required to enforce and to counter such metering.

Metering may reduce competition in the tied market when it is done via a complementary good. There is no risk to competition when metering is done directly. Competition makes it difficult for a firm to impose direct metering on its customers. Metering via a requirements tie may be less obvious and thus require less market power to employ. Interpreting the antitrust law so as not to facilitate metering via a requirements tied sale is desirable.

The Court can apply the rebuttable presumption of a patent's market power in the context of tying a patented

product to a complementary good, while rejecting a presumption as to the market power of a patent in other areas.

The judgment of the court of appeals should be affirmed.

Respectfully submitted,

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